

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:	§	
Leslie R. Fine et al.	§	Confirmation No.: 4138
	§	
Serial No.: 10/797,785	§	Group Art Unit: 3691
	§	
Filed: March 8, 2004	§	Examiner: Ebersman, Bruce I.
	§	
For: SYSTEM AND METHOD FOR	§	Atty Docket: 200401144-1
FINANCE FORECASTING	§	NUHP:0241/FLE/POW/DOO

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**APPEAL BRIEF PURSUANT TO 37 C.F.R. §§ 41.31 AND 41.37**

This Appeal Brief is being filed in furtherance to the Notice of Appeal electronically filed on July 23, 2008, with the U.S. Patent and Trademark Office.

The Commissioner is authorized to charge the requisite fee of \$510.00, and any additional fees which may be required, to the credit card charge authorization submitted electronically with the present filing. However, if for any reason this charge fails, the Commissioner is authorized to charge Deposit Account No. 08-2025; Order No. NUHP:0241/FLE/POW/DOO (200401144-1).

1. **REAL PARTY IN INTEREST**

The real party in interest is the Hewlett-Packard Development Company, the Assignee of the above-referenced application by virtue of the Assignment recorded at reel 015072, frame 0579, on March 8, 2004. Accordingly, the Hewlett-Packard Development Company will be directly affected by the Board's decision in the pending appeal.

2. **RELATED APPEALS AND INTERFERENCES**

Appellants are unaware of any other appeals or interferences related to this Appeal. The undersigned is Appellants' legal representative in this Appeal.

3. **STATUS OF CLAIMS**

Claims 1-23 are currently pending. Claims 3, 12, and 21 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten into independent form. Claims 1, 2, 4-11, 13-20, 22, and 23 are currently under final rejection and, thus, are the subject of this Appeal.

4. **STATUS OF AMENDMENTS**

There are no outstanding amendments to be considered by the Board.

5. **SUMMARY OF CLAIMED SUBJECT MATTER**

The application includes four independent claims, namely, claims 1, 10, 19, and 22, all of which are the subject of this Appeal. The subject matter of these claims is summarized below.

Claims 1, 10, 19 and 22 relate generally to forecasting events. More particularly, present embodiments relate to a method and system for efficiently utilizing small groups of individuals to forecast uncertain events. *See* Application, paragraph 14, lines 2-6. For example, a forecast may be assessed by analyzing the personal characteristics of participants and performing an aggregation of their predictions, whereby the ability of participants to analyze information and their risk attitudes are factored into the aggregation. *See id.*, at lines 6-10. Thus, the predictions of the participants may be weighted as the participants select amongst a group of expected outcomes. *See id.*, paragraph 23, lines 7-11.

With regard to aspects of the invention set forth in independent claim 1, discussions of the recited features of claim 1 can be found at least in the below cited locations of the specification and drawings. By way of example, present embodiments include a method of finance forecasting. The method may comprise determining at least one participant characteristic of a participant. *See* Application, paragraph 19, lines 1-4 and paragraph 20, lines 1-4. The method may also comprise defining probability bins (e.g., 615, 720; Application, paragraph 54, line 6 – paragraph 55, line 2), each of the

probability bins (e.g., 615) corresponding to a probability associated with an expected outcome. *See* Application, paragraph 54, lines 3-7. The method may further comprise performing a query process (e.g., 130; Application, paragraph 21, lines 1-11) with the probability bins as assets. *See* Application, paragraph 51, lines 11-13. Finally, the method may comprise aggregating a result of the query process with weighting for the participant characteristic. *See* Application, paragraph 22, lines 1-8.

With regard to aspects of the invention set forth in independent claim 10, discussions of the recited features of claim 10 can be found at least in the below cited locations of the specification and drawings. By way of example, present embodiments include a computer system for finance forecasting. The computer system may comprise a characteristic determination module (e.g., 815) that determines at least one participant characteristic of a participant. *See* Application, paragraph 19, lines 1-4 and paragraph 20, lines 1-4. The computer system may also comprise a probability bin module (e.g., 820) that defines probability bins (e.g., 615, 720; Application, paragraph 54, line 6 – paragraph 55, line 2), each of the probability bins (e.g., 615) corresponding to a probability associated with an expected outcome. *See* Application, paragraph 54, lines 3-7. The computer system may further comprise a query module (e.g., 825) that performs a query process (e.g., 130; Application, paragraph 21, lines 1-11) with the probability bins (e.g., 615) as assets. *See* Application, paragraph 51, lines 11-13. Finally, the computer system may comprise an aggregation module (e.g., 830) that aggregates a result of the query

process with weighting for the participant characteristic. *See* Application, paragraph 22, lines 1-8.

With regard to aspects of the invention set forth in independent claim 19, discussions of the recited features of claim 19 can be found at least in the below cited locations of the specification and drawings. By way of example, present embodiments include a computer system for finance forecasting. The computer system may comprise means for determining at least one participant characteristic of a participant *See* Application, paragraph 19, lines 1-4 and paragraph 20, lines 1-4; FIG. 8, 815. The computer system may also comprise means for defining probability bins (e.g., 615, 720, 820; Application, paragraph 54, line 6 – paragraph 55, line 2), each of the probability bins (e.g., 615) corresponding to a probability associated with an expected outcome. *See* Application, paragraph 54, lines 3-7. The computer system may further comprise means for performing a query process (e.g. 825; Application, paragraph 21, lines 1-11) with the probability bins (e.g. 615) as assets. *See* Application, paragraph 51, lines 11-13. Finally, the computer system may comprise means (e.g. 830) for aggregating a result of the query process with weighting for the participant characteristic. *See* Application, paragraph 22, lines 1-8.

With regard to aspects of the invention set forth in independent claim 22, discussions of the recited features of claim 22 can be found at least in the below cited locations of the specification and drawings. By way of example, present embodiments

include a computer program stored on a tangible computer-readable medium. The computer program may comprise a characteristic determination module (e.g. 815) stored on the tangible computer-readable medium. *See* Application, paragraph 60, lines 3-7. The computer program may also comprise the characteristic determination module (e.g. 815) adapted to determine at least one participant characteristic of a participant. *See* Application, paragraph 19, lines 1-4 and paragraph 20, lines 1-4. The computer program may further comprise a probability bin module (e.g. 820) stored on the tangible computer-readable medium. *See* Application, paragraph 60, lines 3-7. The computer program may additionally comprise the probability bin module (e.g. 820) adapted to define probability bins (e.g., 720; Application, paragraph 54, line 6 – paragraph 55, line 2), each of the probability bins (e.g. 615) corresponding to a probability associated with an expected outcome. *See* Application, paragraph 54, lines 3-7. The computer program may comprise a query module (e.g. 825) stored on the tangible computer-readable medium. *See* Application, paragraph 60, lines 3-7. The computer program may also comprise the query module (e.g. 825) adapted to perform a query process with the probability bins (e.g. 615) as assets. *See* Application, paragraph 21, lines 1-11. The computer program may additionally comprise an aggregation module (e.g. 830) stored on the tangible computer-readable medium. *See* Application, paragraph 60, lines 3-7. Finally, the computer program may comprise the aggregation module (e.g. 830) adapted to aggregate a result of the query process with weighting for the participant characteristic. *See* Application, paragraph 22, lines 1-8.

6. **GROUND OF REJECTION TO BE REVIEWED ON APPEAL**

**First Ground of Rejection for Review on Appeal:**

Appellants respectfully urge the Board to review and reverse the Examiner's first ground of rejection in which the Examiner rejected claims 1, 2, 4-7, 9-11, 13-16, 18-20, 22, and 23 under 35 U.S.C. § 103(a), as being unpatentable over Geiger, U.S. Patent No. 6,236,900 (hereinafter "the Geiger reference"), in view of Horrigan et al., U.S. Patent No. 6,493,682 (hereinafter "the Horrigan reference").

**Second Ground of Rejection for Review on Appeal:**

Appellants respectfully urge the Board to review and reverse the Examiner's second ground of rejection in which the Examiner rejected claims 8 and 17 under 35 U.S.C. § 103(a), as being unpatentable over the Geiger reference in view of the Horrigan reference and in further view of Jennings et al., U.S. Patent No. 6,606,615 (hereinafter "the Jennings reference").

7. **ARGUMENT**

As discussed in detail below, the Examiner has improperly rejected the pending claims. Further, the Examiner has misapplied long-standing and binding legal precedents and principles in rejecting the claims under 35 U.S.C. § 103. Accordingly, Appellants respectfully request full and favorable consideration by the Board, as Appellants respectfully assert that claims 1, 2, 4-11, 13-20, 22, and 23 are currently in condition for allowance.

A. **Ground of Rejection No. 1:**

With respect to the Examiner's rejection of claims 1, 10, 19, and 22 under 35 U.S.C. § 103(a) as unpatentable over the Geiger reference in view of the Horrigan reference, the Examiner stated the following:

As per claims 1, 10, 19, 22

Geiger discloses determining at least one participant characteristic of a participant; (Col. 2, line 5-10), Geiger discloses a query process and probabilities. (Col. 3, line 19-23) aggregating a result of the query process with weighting for the participant characteristic. (Col. 4., line 11-17 and 45-63)

Geiger does not specifically disclose defining probability bins and that each probability bin corresponding to a probability is associated with an expected outcome (probabilities are disclosed). Geiger does also not specifically associate performing a query process with probability bins.

Horrigan teaches defining probability bins, (col. 22 line 60-5), Further, Horrigan teaches that each of the probability bins corresponding to a probability associated with an expected outcome; (Col 60-5, Col. 22) and probability bins in conjunction with assets (Col 5, line 50).

It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to combine the forecasting methods and disclosures which can work for assets or gaming with the probability bin and predictive teachings of Horrigan for the purpose of predicting asset values using probability bins to differentiate values which are continuous.

Final Office Action, pp. 3-4.

Appellants respectfully traverse this rejection. The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re*



*Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). However, it is not enough to show that all the elements exist in the prior art since a claimed invention composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). It is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does. *Id.* Specifically, there must be some articulated reasoning with a rational underpinning to support a conclusion of obviousness; a conclusory statement will not suffice. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Indeed, the factual inquiry determining whether to combine references must be thorough and searching, and it must be based on *objective evidence of record*. *In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002).

The Geiger and Horrigan references, whether considered separately or in a hypothetical combination, fail to anticipate all elements of independent claims 1, 10, 19, and 22. For example, Independent claim 1 recites, *inter alia*, “*determining at least one participant characteristic of a participant; defining probability bins...performing a query process with the probability bins as assets; and aggregating a result of the query process with weighting for the participant characteristic.*” (Emphasis added). Independent claim 10 recites, *inter alia*, “*a characteristic determination module that determines at least one participant characteristic of a participant; a probability bin module...a query module that performs a query process with the probability bins as assets; and an aggregation*

module that *aggregates a result of the query process* with weighting for the participant characteristic.” (Emphasis added). Independent claim 19 recites, *inter alia*, “means for *determining at least one participant characteristic of a participant*...means for defining probability bins...means for *performing a query process with the probability bins as assets*; and means for *aggregating a result of the query process* with weighting for the participant characteristic.” (Emphasis added). Finally, independent claim 22 recites, *inter alia*, “the characteristic determination module adapted to *determine at least one participant characteristic of a participant*; a probability bin module...the query module adapted to *perform a query process with the probability bins as assets*; and...the aggregation module adapted to *aggregate a result of the query process* with weighting for the participant characteristic.” (Emphasis added).

First, contrary to the Examiner’s position, the Geiger reference fails to teach *aggregating a result of the query process*, as recited in independent claims 1, 10, 19, and 22. The Examiner explicitly admits that the Geiger reference does not associate performing a query process with probability bins. *See* Final Office Action, page 3, lines 12-13. Yet, despite the fact that the Geiger reference does not teach performing a query process with the probability bins, the Examiner asserts that the Geiger reference aggregates a result of this very process which was just admitted to not be present. The Examiner has given no direction as to how the Geiger reference, silent as to performing the recited query process, may then *aggregate that same process*.

Indeed, the cited sections of the Geiger reference (Col. 4, lines 11-17 and 45-63) do not disclose aggregating *the result of the query process*. Instead, the cited portions, at best, merely disclose aggregation of the result *of one or more events*, namely whether a participant correctly guessed an event outcome. Unlike aggregating the result of the query process, aggregating the result of events must necessarily occur *after* the events have transpired. The teachings of the Geiger reference related to aggregation of the result of *one or more events* do not teach aggregating the result of the *query process*, as recited in the present claims.

Second, the Examiner additionally stated that the Geiger reference could anticipate independent claims 1, 10, 19, and 22, except that the Geiger reference merely discloses the use of “reciprocal probabilities” and “does not explicitly use a probability bin which is based on non-reciprocal probability.” *See* Final Office Action, page 8, lines 8-17. Thus, as the Examiner pointed out, the Geiger reference uses reciprocal probability to establish “bins” whereby the value associated with the selection of a given *outcome* is proportional to the number of participants who selected that outcome. *See* Final Office Action, page 7, lines 5-18. For example, as described in the Geiger reference, if 100 players out of 1000 players choose team Y as winning the championship (outcome), then the probability point outcome is 100/1000, or 1/10, giving a probability of 10. *See* Geiger, Col. 7, lines 13-21. In this manner, the *outcome* is the asset on which the players are queried, and based on this query, the probabilities are set.

Contrast this with independent claims 1, 10, 19, and 22, which are generally directed to systems and methods for performing a query process, wherein the query process is performed *with the probability bins as assets*. Indeed, Appellants stress that, in accordance with present embodiments, the *probability bins* are the assets on which the participants are queried, not the *outcome*. As shown above, the Geiger reference teaches a prediction model that operates in *the opposite manner* to that claimed in independent claims 1, 10, 19, 22.

In an attempt to cure the above-referenced deficiency in the Geiger reference, the Examiner introduced the Horrigan reference for its alleged teaching related to non-reciprocal probabilities. *See* Final Office Action, page 8, lines 14-16. However, the mere introduction of a reference that discusses non-reciprocal probability is insufficient to address the deficiencies of the Geiger reference. Again, the Geiger reference merely teaches a prediction model that operates with an *outcome* as an asset. Appellants stress that simply citing a reference that discusses non-reciprocal probability is not sufficient to modify the Geiger reference such that it teaches the presently claimed systems and methods for performing a query process *with the probability bins as assets*. In other words, in the hypothetical combination suggested by the Examiner, the mere addition of teachings directed to non-reciprocal probabilities are insufficient to rearrange the entire method of querying described in the Geiger reference. Thus, contrary to the position taken by the Examiner, Appellants assert that the non-reciprocal probability (allegedly

disclosed in the Horrigan reference) is insufficient to overcome the deficiencies of the Geiger reference.

Third, whether considered separately or in a hypothetical combination, neither the Geiger reference nor the Horrigan reference discloses a query process performed *with the probability bins as assets*. In the Final Office Action the Examiner admitted that the Geiger reference does not teach performing a query process *with the probability bins as assets* (See Final Office Action, page 3, lines 10-13). However, as indicated above, the Examiner attempted to remedy the deficiencies of the Geiger reference by citing the Horrigan reference. Specifically, the Examiner stated that the Horrigan reference teaches “probability bins with percentages and non-reciprocal probabilities.” Final Office Action, page 8, lines 12-13. However, the Examiner failed to show that these bins are used as *assets* when performing a query process. Indeed, contrary to the Examiner’s assertions, Appellants stress that the Horrigan reference fails to disclose a query process *with the probability bins as assets*.

The one line of the Horrigan reference cited by the Examiner in support of “probability bins in conjunction with assets”, Col. 5, line 50, does not even address bins at all, let alone performing a query process *with the probability bins as assets*. Indeed, the section of the Horrigan reference cited by the Examiner is reproduced in its entirety below:

If a principal order is placed, we assume it is executed  
at the start of the trade period at time  $t$ , at the current

principal price. At the end of the trade period, at time  $t+1$ , performance is evaluated based on a terminal valuation price.

Horrigan, col. 5, lines 49-53.

As can be seen above, this section is totally devoid of any teaching of a query process, bins as assets, or performing a query process *with the probability bins as assets*. As such, it is unclear why the Examiner has determined that this section teaches performing a query process *with the probability bins as assets*. This section, as well as the remainder of the Horrigan reference, clearly does not teach the above recited claim limitations of independent claims 1, 10, 19, and 22.

As such, none of the cited references, taken alone or in hypothetical combination disclose all of the features of independent claims 1, 10, 19, or 22. Accordingly, since the prior art of record fails to disclose all elements of independent claims 1, 10, 19, and 22, Appellants respectfully submit that independent claims 1, 10, 19, and 22, as well as all claims depending therefrom, are allowable. Therefore, Appellants respectfully request the Board reverse the Examiner's rejection of independent claims 1, 10, 19, and 22 under 35 U.S.C. § 103, and further request allowance independent claims 1, 10, 19, and 22, as well as all claims depending therefrom.

B. **Ground of Rejection No. 2:**

With respect to the Examiner's rejection of claims 8 and 17 under 35 U.S.C. § 103(a) as unpatentable over the Geiger reference in view of the Horrigan reference and in further view of the Jennings, the Examiner stated:

As per claims 8,17, Geiger discloses participant prediction (Col. 2, line 20), Geiger and Horrigan do not explicitly disclose exponential factoring for the participant characteristic and query process. Jennings teaches forecasting process where the results of the query process are aggregated by utilizing Bayes Formula for each probability of the potential outcome assigned by a participant modified by an exponential factor for the purpose of factoring the probability adjustments associated with each participants characteristics. (Col. 53, Lines 30-40). It would therefore have been obvious to one of ordinary skill in the art at the time of the invention to combine the participant characteristic and query process disclosure of Geiger with the participant prediction and exponential factoring teachings of Jennings for the purpose of accounting for participant characteristics in a query process.

Final Office Action, pp. 5.

Appellants respectfully traverse this rejection. The burden of establishing a *prima facie* case of obviousness falls on the Examiner. *Ex parte Wolters and Kuypers*, 214 U.S.P.Q. 735 (B.P.A.I. 1979). To establish *prima facie* obviousness of a claimed invention, all the claim limitations must be taught or suggested by the prior art. *In re Royka*, 180 U.S.P.Q. 580 (C.C.P.A. 1974). However, it is not enough to show that all the elements exist in the prior art since a claimed invention composed of several elements is not proved obvious merely by demonstrating that each of its elements was, independently, known in the prior art. *KSR International Co. v. Teleflex Inc.*, 127 S.Ct. 1727, 1741 (2007). It is important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the

claimed new invention does. *Id.* Specifically, there must be some articulated reasoning with a rational underpinning to support a conclusion of obviousness; a conclusory statement will not suffice. *In re Kahn*, 441 F.3d 977, 988 (Fed. Cir. 2006). Indeed, the factual inquiry determining whether to combine references must be thorough and searching, and it must be based on *objective evidence of record*. *In re Lee*, 61 U.S.P.Q.2d 1430, 1436 (Fed. Cir. 2002).

The Jennings reference was used in the rejection of claims 8 and 17, which depend from independent claims 1 and 10 respectively. *See* Final Office Action, page 5, lines 5-7. The Jennings reference is generally directed to tracking the accuracy of predictions made by participants. *See* Jennings, Abstract. However, the Jennings reference fails to cure the deficiencies of the Geiger and Horrigan references with respect to independent claims 1 and 10. Accordingly, based at least upon their dependencies from allowable claims 1 and 10, Appellants respectfully submit that dependent claims 8 and 17 are allowable. As such, Appellants respectfully request the Board reverse the Examiner's rejection of claims 8 and 17 under 35 U.S.C. § 103, and further request allowance claims 8 and 17.



**Conclusion**

Appellants respectfully submit that all pending claims are in condition for allowance. However, if the Examiner or Board wishes to resolve any other issues by way of a telephone conference, the Examiner or Board is kindly invited to contact the undersigned attorney at the telephone number indicated below.

Respectfully submitted,

Date: September 23, 2008

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8. **APPENDIX OF CLAIMS ON APPEAL**

**Listing of Claims:**

1. A method of finance forecasting, comprising:  
determining at least one participant characteristic of a participant;  
defining probability bins, each of the probability bins corresponding to a  
probability associated with an expected outcome;  
performing a query process with the probability bins as assets; and  
aggregating a result of the query process with weighting for the participant  
characteristic.
2. The method of claim 1, comprising conducting an information market to  
determine the participant characteristic.
4. The method of claim 3, comprising providing a mean estimate as the  
center probability bin.
5. The method of claim 1, wherein defining the probability bins comprises  
subdividing historical true data into the probability bins.
6. The method of claim 1, wherein the act of performing a query process  
comprises wagering by the participant on the expected outcome.

7. The method of claim 6, comprising facilitating the participant wagering by providing a web-based software application.

8. The method of claim 1, wherein the weighting includes an individual participant prediction with exponential factoring for the participant characteristic and the query process as a whole.

9. The method of claim 1, wherein the query process comprises a matching market.

10. A computer system for finance forecasting, comprising:  
a characteristic determination module that determines at least one participant characteristic of a participant;  
a probability bin module that defines probability bins each of the probability bins corresponding to a probability associated with an expected outcome;  
a query module that performs a query process with the probability bins as assets;  
and  
an aggregation module that aggregates a result of the query process with weighting for the participant characteristic.

11. The computer system of claim 10, comprising an information market module adapted to determine the participant characteristic.

13. The computer system of claim 12, comprising a mean estimate module adapted to provide a mean estimate as the center probability bin.

14. The computer system of claim 10, comprising a subdividing module that subdivides historical true data into the probability bins.

15. The computer system of claim 10, comprising a wager module that facilitates wagering by the participant on the expected outcome.

16. The computer system of claim 15, comprising a web module that facilitates the participant wagering by providing a web-based software application.

17. The computer system of claim 10, comprising a factoring module that incorporates an individual participant prediction with exponential factoring for the participant characteristic and the query process as a whole.

18. The computer system of claim 10, comprising a matching market module adapted to determine the expected outcome.

19. A computer system for finance forecasting, comprising:

means for determining at least one participant characteristic of a participant;

means for defining probability bins each of the probability bins corresponding to a probability associated with an expected outcome;

means for performing a query process with the probability bins as assets; and

means for aggregating a result of the query process with weighting for the participant characteristic.

20. The computer system of claim 19, comprising means for running an information market to determine the participant characteristic.

22. A computer program stored on a tangible computer-readable medium, comprising:

a characteristic determination module stored on the tangible computer-readable medium, the characteristic determination module adapted to determine at least one participant characteristic of a participant;

a probability bin module stored on the tangible computer-readable medium, the probability bin module adapted to define probability bins, each of the probability bins corresponding to a probability associated with an expected outcome;

a query module stored on the tangible computer-readable medium the query module adapted to perform a query process with the probability bins as assets; and

an aggregation module stored on the tangible computer-readable medium, the aggregation module adapted to aggregate a result of the query process with weighting for the participant characteristic.

23. The computer program stored on a tangible computer-readable medium of claim 22, comprising an information market module stored on the tangible computer-readable medium adapted for running an information market to determine the participant characteristic.

9. **EVIDENCE APPENDIX**

None.

10. **RELATED PROCEEDINGS APPENDIX**

None.